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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/734,816	12/12/2003	Steven A. Soper	Soper 0023.1	3513
25547 7590 05/12/2009 PATENT DEPARTMENT TAYLOR, PORTER, BROOKS & PHILLIPS, LLP P.O. BOX 2471 BATON ROUGE, LA 70821-2471				
EXAMINER LEE, SIN J				
ART UNIT		PAPER NUMBER		
1795				
MAIL DATE		DELIVERY MODE		
05/12/2009		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/734,816

**Applicant(s)**

SOPER ET AL.

**Examiner**

Sin J. Lee

**Art Unit**

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 January 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date \_\_\_\_\_

**DETAILED ACTION**

1. In view of the amendment, previous *102(e) rejection* over Brandow et al'615, 102(b) rejection over Gudimenko et al'484 and previous 103(a) rejection over Bilyk et al'331 are hereby withdrawn.
2. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:  

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claims 1-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, applicants recite that "if the reactant is an amine, then said process additionally comprises the step of reacting the amine with carboxyl bound to the

polymer to produce an amide group that covalently *links the reactant to the polymer*." It is not clear to the Examiner what applicants mean by this limitation; if the amine (the reactant) is reacted with carboxyl group to produce an amide group, then how is it possible that the amine group, which is already converted to an amide group by reaction with carboxyl group, is covalently linked to the polymer?

Appropriate correction or clarification is required.

Also, in claim 1, applicants recite "the *polymer substrate* comprises . . . , when the *polymer surface* is exposed to actinic light . . . ". By "the polymer surface", do applicants mean the surface of the polymer substrate (as interpreted by the Examiner)?

Appropriate correction or clarification is required.

***Claim Rejections - 35 USC § 103***

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
6. Claims 1, 2, 4-11, 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brandow et al (US 6,436,615 B1).

In Fig.2, Brandow teaches the following; first, by imagewise exposure to 193 nm radiation, the polymer having 3-chloromethyl*phenyl* group is oxidized to have -COOH groups in the exposed portions. Further steps such as grafting of ligand Q-Z and EL Ni deposition follow (see also, col.4, lines 66-67, col.5, lines 1-45). Brandow teaches (col.5, lines 32-39) that the preferred exposure sources are excimer lasers operating under *ambient* conditions. Since Brandow teaches that the material remaining in the irradiated regions are oxidized species such as carboxylic acid groups, it is the

Examiner's position that Brandow teaches present step of selectively exposing the polymer in an oxidizing atmosphere to actinic light with the fluence of light in the exposed portions sufficient to induce photooxidation of polymer sufficient to generate carboxyl groups that remain bound to the polymer surface. Brandow teaches that Q (a group possessing the appropriate combination of physical and chemical properties required for the application) can include single strand DNA sequences (col.6, lines 19-21). Brandow also teaches that (col.6, lines 28-38) Q can contain ligand groups such as thiol-, amino-, pyridyl-, diphenylphosphino-, or acetylacetonato- and Z can consist of aliphatic amine or alcohols. Based on this teaching, it would have been obvious to one skilled in the art to have Q to be thiol and Z to be alcohol group with a reasonable expectation of providing improved substrate patterning. Thus, Brandow teaches present inventions of claims 1, 2, 4-11, 13 and 14.

### ***Response to Arguments***

7. Applicants argue that Brandow does not teach present invention because Brandow teaches the reaction of a primary or secondary amine to form an imine, followed by reduction to an amine but never suggests the formation of an amide as presently recited. However, as addressed above, Brandow also teaches that (col.6, lines 28-38) Q can contain ligand groups such as thiol-, amino-, pyridyl-, diphenylphosphino-, or acetylacetonato- and Z can consist of aliphatic amine or alcohols. Based on this teaching, it would have been obvious to one skilled in the art to have Q to be thiol and Z to be alcohol group with a reasonable expectation of providing improved substrate patterning. Even though such -QZ group was not used in working

examples, in In re Mills and Palmer 176 USPQ 196, it was held that non-preferred embodiments cannot be ignored, and even if the non-preferred embodiments are used, obviousness exists. Patentee, in the same manner as applicant, it not limited in his teaching to only the exemplified subject matter.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sin J. Lee whose telephone number is 571-272-1333. The examiner can normally be reached on Monday-Friday from 9:00 am EST to 5:30 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly, can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is **571-273-8300**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Sin J. Lee/  
Primary Examiner, Art Unit 1795  
May 11, 2009